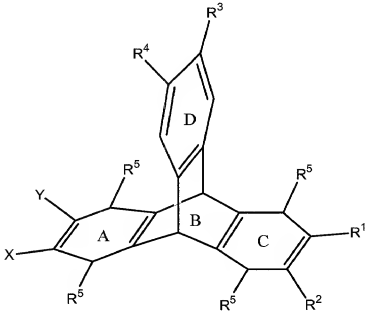
CLAIMS

1. A triptycene analog comprising a compound of formula:



wherein

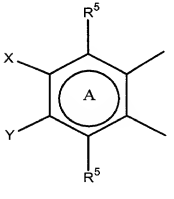
X is selected from the group consisting of: H, R, SR and NR;

Y is selected from the group consisting of: halogen, R, NR_2, SR and H;

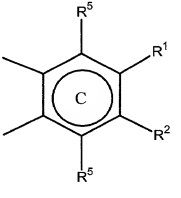
R and R^{1-2} are independently selected from the group consisting of: H, halogen, OR, and hydrocarbyl;

R^{3-4}, independently of one another, are selected from the group consisting of: H, bromine, R, SR, and NR_2;

R^5, independently of other R^5s, is selected from the group consisting of: =O, =N-OH and =CHR; and reduced forms thereof, wherein in reduced forms, either ring A or ring C or both is replaced with

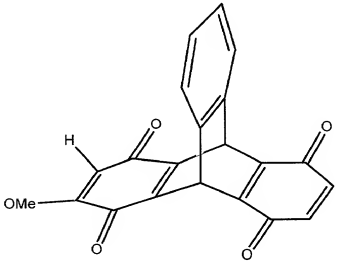


or

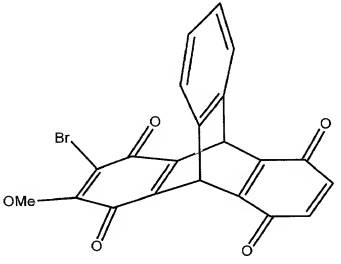


and wherein in reduced forms, each R^5 is independently H, C1-C8 alkyl or -OR; and pharmaceutically acceptable salts of the foregoing, as well as optical isomers thereof.

2. The triptycene analog of claim 1 having the formula:



3. The triptycene analog of claim 1 having the formula:



4. The triptycene analog of claim 1, wherein:

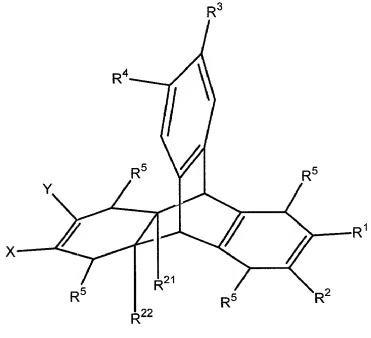
X is selected from the group consisting of: H, OMe and CO_2Me;

Y is selected from the group consisting of:H, Br, and OMe;

R^1, R^2, R^3 and R^4 are all H; and

R^5 is, independently of other R^5s, selected from the group consisting of: OH, OMe, =O, and H.

5. A triptycene analog having the formula:



wherein

X is selected from the group consisting of: H, R, SR and NR_2

Y is selected from the group consisting of: halogen, NR_2, R, SR and H;

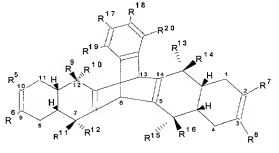
R and R^{1-2}, are independently selected from the group consisting of: H, halogen, OR, and hydrocarbyl;

R^{3-4}, independently of one another, are selected from the group consisting of: H, bromine, R, SR, and NR_2;

R^5, independently of other R^5s, is selected from the group consisting of: =O, =N -OH, and =CHR;

R^{21} and R^{22} are independently selected from the group consisting of: H, R, and OR; and reduced forms thereof and pharmaceutically acceptable salts of the foregoing, as well as optical isomers thereof.

6. A triptycene analog having the formula:



wherein

R^5 is selected from the group consisting of: R, halogen, NR_2, SR, and H;

R^6 is selected from the group consisting of: H, R, SR and NR_2;

R^7 and R^8 are independently selected from the group consisting of: H, halogen, and hydrocarbyl;

R^{17} and R^{18} are independently are selected from the group consisting of: H, bromine, R, SR, and NR_2;

R^{19} and R^{20} are, independently of one another, H, R, or OR;

(R^9 and R^{10}) and (R^{11} and R^{12}) and (R^{13} and R^{14}) and (R^{15} and R^{16}) are independently together =O or are independently H or -OR;

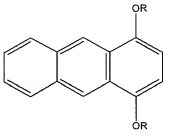
R is selected from the group consisting of: H, halogen, OR, and hydrocarbyl; and reduced forms thereof;

and pharmaceutically acceptable salts of the foregoing, as well as optical isomers thereof.

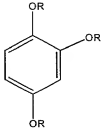
7. A method of making a compound of claim 1, comprising:
heating an optionally substituted anthracene with an optionally substituted quinone with silver oxide.

8. The method of claim 7, further comprising adding zinc iodide.

9. The method of claim 7, wherein the optionally substituted anthracene has the formula:



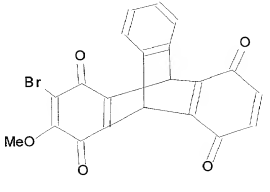
and the optionally substituted quinone has the formula:



where R is H or hydrocarbyl.

10. A method of brominating a triptycene derivative by reacting a triptycene derivative with N-bromosuccinimide.

11. The method of claim 10, wherein the triptycene derivative is:



12. A method of inhibiting nucleoside transport, inducing DNA fragmentation, inhibiting nucleic acid synthesis, inhibiting protein synthesis, decreasing the proliferation of cancer cells or decreasing the viability of cancer cells comprising administering an effective amount of a compound of claim 1 to a patient.

13. A method of treating cancer in a host, comprising administering to said host a therapeutically effective amount of a compound of claim 1 for an effective time.

14. A triptycene analog of claim 1,

wherein at least one of X, Y, R^1 and R^2 is selected from the group consisting of: a nitrogen containing group, a water soluble group, and a sulfur containing group.

15. The compound of claim 14, wherein X is $-NR_2$.

16. The compound of claim 14, wherein R^2 is $-NR_2$.

17. The compound of claim 16, wherein R^2 is $-NMe_2$.

18. The compound of claim 14, wherein at least one of X, Y, R^1 and R^2 is selected from the group consisting of: amine, amino acid and amine sugar.

19. The compound of claim 14, wherein X is $-NH-(CH_2)_n-CO_2R$, where n is an integer from 0 to 8, and R is as defined in claim 14.

20. The compound of claim 19 wherein R is H.

21. The compound of claim 14, wherein one or more of X, Y, R^1 and R^2 contains an optionally substituted nitrogen containing hydrocarbyl group.

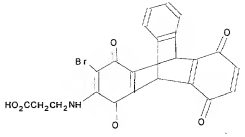
22. The compound of claim 21, wherein the optionally substituted nitrogen containing hydrocarbyl group is a fused ring structure.

23. The compound of claim 14, wherein X is a sulfur containing group.

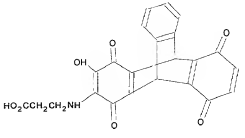
24. The compound of claim 23, wherein the sulfur containing group also contains one or

more N atoms.

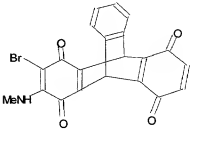
25. The compound of claim 14 having the formula:



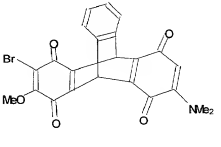
26. The compound of claim 14 having the formula:



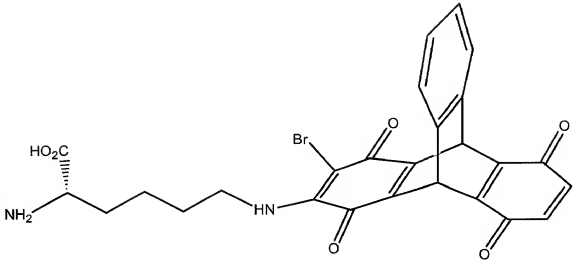
27. The compound of claim 14 having the formula:



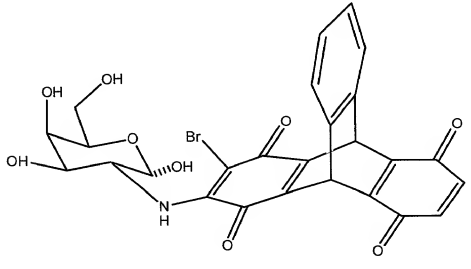
28. The compound of claim 14 having the formula:



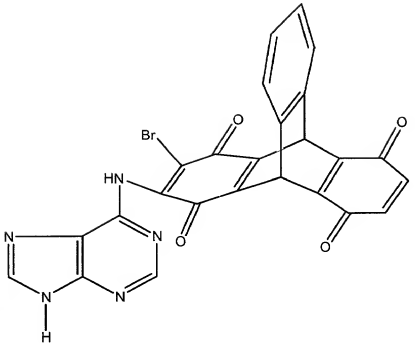
29. The compound of claim 14 having the formula:



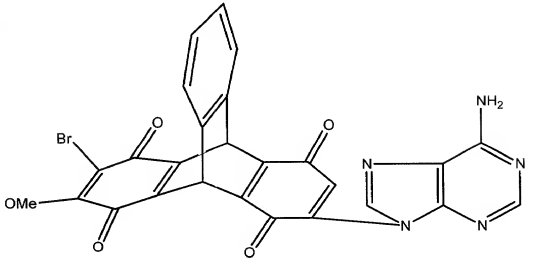
30. The compound of claim 14 having the formula:



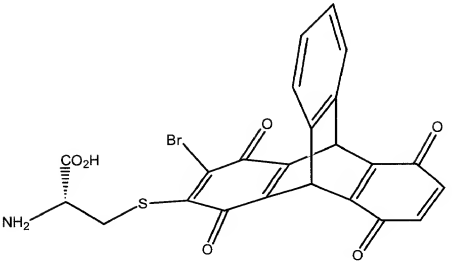
31. The compound of claim 14 having the formula:



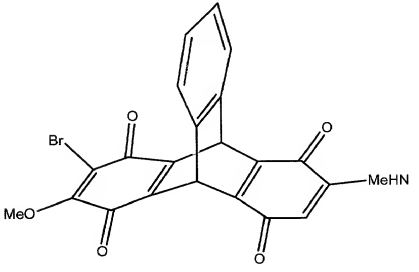
32. The compound of claim 14 having the formula:



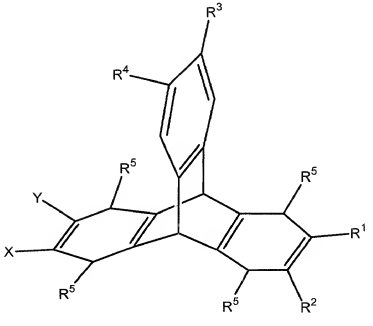
33. The compound of claim 14 having the formula:



34. The triptycene analog of claim 14 having the formula:



35. A triptycene analog comprising a compound of formula:



wherein X is -NW$(CW_2)_nZ$, where the Ws are independently selected from the group consisting of: H, C1-C8 alkyl, and C1-C8 alkenyl; n is an integer from 1 to 8; and Z is selected from the group consisting of: R, COR, COOR, $CONR_2$, OOCR and NRCOR;

Y is selected from the group consisting of: halogen, C1-C8 alkyl, C1-C8 alkenyl, OR, NR_2, SR, H, COR, OCOR and NRCOR;

R and R^{1-2}, are independently selected from the group consisting of: H, OR, and hydrocarbyl;

R^{3-4}, independently of one another, are selected from the group consisting of: H, OR, SR, and NR_2;

R^5, is =O; and reduced forms thereof and pharmaceutically acceptable salts of the foregoing, as well as optical isomers thereof.

36. The triptycene analog of claim 5,

wherein at least one of X, Y, R^1 and R^2 is selected from the group consisting of: a nitrogen containing group, a water soluble group, and a sulfur containing group.

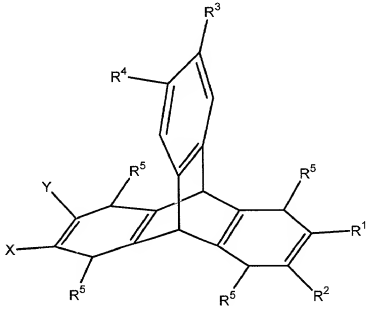
37. The compound of claim 36 wherein at least one of R^{21} and R^{22} is $-CO^2R$.

38. The compound of claim 14 which blocks nucleoside transport, induces DNA fragmentation, inhibits nucleic acid synthesis, inhibits protein synthesis, decreases the proliferation of cancer cells, or decreases the viability of cancer cells.

39. The triptycene analog of claim 6,

wherein at least one of R^5, R^6, R^7 and R^8 is selected from the group consisting of: a nitrogen containing group, a water soluble group, and a sulfur containing group.

40. A method of making a nitrogen-containing compound of claim 14, comprising: reacting a triptycene derivative of formula:



wherein

R^{3-4}, independently of one another, are selected from the group consisting of: H, bromine, R, SR and NR_2;

R^5, independently of other R^5s, is selected from the group consisting of: =O, and =N-OH, and = CHR;

Y is Br, and X is -OR;

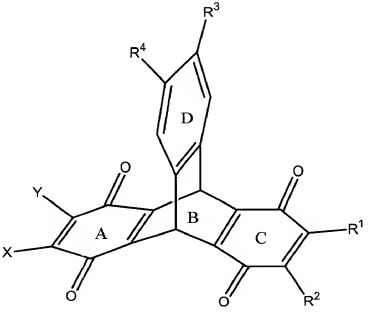
R and R^{1-2} are independently selected from the group consisting of: H, OR, and hydrocarbyl; and reduced forms thereof;

with a primary or secondary amine.

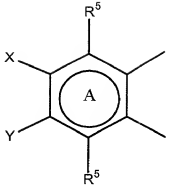
41. A method of inhibiting nucleoside transport, inducing DNA fragmentation, inhibiting nucleic acid synthesis, inhibiting protein synthesis, decreasing the proliferation of cancer cells or decreasing the viability of cancer cells comprising administering an effective amount of a compound of claim 14, 35, 36 or 39 to a patient.

42. A method of treating cancer in a host, comprising administering to said host a therapeutically effective amount of a compound of claim 14, 35, 36 or 39 for an effective time.

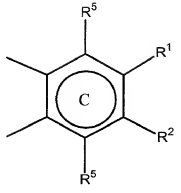
43. A triptycene analog of formula:



and the reduced forms thereof, wherein in said reduced forms, either ring A or ring C or both is reduced to



or



wherein all but one of X, Y, R1 and R2 is independently H, C1-C6 alkyl, C1-C6 alkenyl, OR, SR or NR2 wherein each R is independently H or C1-C6 alkyl and the other R1 or R2 is a solubilzing group; and each R5 is independently H, C1-C6 alkyl or OR.

44. The triptycene analog of claim 43, wherein the solubilizing group is of the formula: $NR(CR_2)_nX$ wherein X is a sugar, R, COR, COOR, $CONR_2$, OOCR and NRCOR; R is independently selected from the group consisting of: H, C1-C8 alkyl and C1-C8 alkenyl; n is an integer from 1 to 8.